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News from the Membership

Caroline Buttler. I am just about to begin a project examining the conservation of palaeontological acetate peels. It is known that acetate will deteriorate with time and one of the aims is to examine the degradation of peels (using FTIR) and hopefully suggest ways to prevent it occurring. The project will also look if there are differences in the measurements of features made from the peel and from the original etched specimen. Peels will be artificially aged to examine changes in stability and dimensions with time. I would like to look at different types and thicknesses of acetate and would be grateful for any samples you might be able to spare, approximately 15cm² in size, if possible with information on when and where it was bought. Please send samples to me at; Dept of Geology, National Museum Wales, Cathays Park, Cardiff, CF10 3NP, Wales, UK.

Beth Okamura. I have recently moved to the Department of Zoology at the Natural History Museum in London to a position that will allow me to spend much more time on research. My PhD student, Tanya Knowles, has moved with me to continue her research using bryozoan remains to infer palaeoclimate regimes. Proximity to co-supervisor, Paul Taylor, is of course greatly aided by this move! Hanna Hartikainen will be coming as a postdoc in the autumn to work on freshwater bryozoans and their myxozoan parasites. In view of this we have set up three mesocosm systems, introducing living bryozoans to the depths of South Kensington! A developing research area is to characterise historical vs. present-day metapopulation ecology through the analysis of statoblasts and other organismal remains in sediment cores and this will provide the focus for a new PhD project. This research is greatly facilitated by my move to the NHM, allowing collaboration with colleagues with expertise in the analysis of other taxa in sediment cores (Dr Steve Brooks, NHM; Dr Carl Sayer, University College London).

Catherine Reid. I have recently moved back to New Zealand and taken up a teaching and research position in the Department of Geological Sciences at the University of Canterbury in Christchurch. After a very enjoyable time at my first IBA and energised for all things bryozoan, I will be resuming research started during my PhD into Late Palaeozoic palaeoecology and biogeography of Gondwanan bryozoan faunas.

Emmy Wöss. After the IBA conference in Boone I had the great opportunity to study freshwater bryozoans with Tim Wood in Dayton. It was fantastic to make excursions to lakes in Ohio and I want to thank Tim and Miriam Wood for their wonderful hospitality.

New Members

Javier Souto Derungs. During last years, I have studied material from the *Pourquoi Pas?* sampling survey around the British Isles. The results was presented as a *Tesina* in the University of Santiago de Compostela (Spain) with the title “Briozoos de las campañas de Pourquoi Pas? en el Canal de la Mancha y alrededores de las Islas Británicas (1914-1930)” and directed by Dr. Fernández-Pulpeiro and Dr. Reverter-Gil. I hope that the article on these results will be published soon. Now I am starting my PhD study on the Iberian Bryozoans (Ctenostomatida and Cheilostomatida Anascina), supported by the “Iberian Fauna Project” and also directed by Dr. Fernández-Pulpeiro and Dr. Reverter-Gil.

Dr. Eugenio Fernández-Pulpeiro. I am Professor of Zoology at the University of Santiago de Compostela (Spain). I have been studying Bryozoans from over 25 years ago. I have worked mainly on the Bryozoan fauna from Galicia (NW Spain), but also on other European faunas. During some years I have also worked on fouling problems in the harbour of Vigo (NW Spain). From some 10 years ago my main research was focused in marine coastal resources, but keeping also the bryozoan studies. We have now started a project research for the next 3 years on the Iberian bryozoans. The overall aim of this project is to elaborate a well-documented inventory of the Ctenostomatida and Cheilostomatida Anascina of the Iberian Peninsula and the Balearic Islands, as well as to produce a database of the Ibero-Balearic Bryozoa.

14th IBA Conference, Appalachian State University, Boone, North Carolina, 1-6 July 2007

Nestled in a valley in the Blue Ridge Mountains, the picturesque town of Boone has been a centre for bryozoan studies for the last 40 years, with first Ken McKinney and now Steve Hageman lecturing in palaeontology at Appalachian State University (ASU). Therefore, it was very appropriate that the recent IBA conference should have been held in Boone. The meeting was hosted by Steve Hageman who worked like a Trojan to ensure a superb conference enjoyed by some 70 scientists from 25 different countries.

The problems of negotiating the overcrowded airways to reach Boone with luggage intact were soon forgotten when the conference got underway. A day of workshops preceded the formal lecture sessions. **Tim Wood's** workshop on freshwater bryozoans included a collecting trip to a local site where a possible new species was discovered and, allegedly, conveyed away from the scene hidden inside Roger Cuffey's hat. **Jo Porter** coordinated a workshop on molecular biology, and half-day workshops were run by **Ken McKinney** and **Patrick Wyse Jackson** on the taxonomy of fenestrates, and by **Paul Taylor** on cyclostome taxonomy. An icebreaker barbeque followed, greatly appreciated by workshop participants and new arrivals alike.

The Provost of ASU Dr Stanley Aeschelman and Ken McKinney welcomed us to the opening lecture session of the main conference. Ken pointed out that we had in our midst one of the IBA's founder members – Giampietro Braga - who had been present at the meeting in Stockholm in 1965 when our association was first conceived.

We were particularly privileged to begin the conference with a plenary lecture from **Margo Haygood** (Oregon Health and Science University). Margo described work on bacterial symbioses in *Bugula* and *Watersipora*. She noted that, as most metabolic diversity among organisms resides in bacteria, it is not surprising that metazoans have often entered into symbioses with bacteria to carry out processes conferring them with competitive advantages. For example, bryostatins produced by the gamma-proteobacterium *Endobugula sertula* make the larvae of its host bryozoan *Bugula neritina* unpalatable to fish predators. Twenty different types of bryostatin are now known to exist in bryozoans. Molecular phylogenetic studies have demonstrated coevolution between species of *Bugula* and *Endobugula*, allowing the acquisition of the symbiosis and its secondary loss in some bryozoan hosts (e.g. *B. stolonifera*) to be traced. While considerable research has been done on the symbiosis between *Bugula* and *Endobugula* because of the medical importance of bryostatin 1 in cancer treatment, symbioses between species of *Watersipora* and the alpha-proteobacterium *Endowatersipora* are as yet poorly known. This bacterium too produces natural products - quinines - that show significant activity against human tumours. As in *Bugula*, bacteria are present in particularly high densities in the larvae of *Watersipora*.

Two lectures before the morning break continued the theme of bryozoan symbioses. First **Jasmine Sharp** (University of Wales Aberystwyth) reported research on the bacterial communities associated with the surfaces of some British marine bryozoans. She and her collaborators found these communities to be less diverse on larvae than adults, and demonstrated a greater similarity between communities on larvae belonging to different

species than between larvae and adults of the same species. **Beth Okamura** (NHM, London) and coworkers have been studying the endoparasites of colonial animals, especially the myxozoans that infect phylactolaemates. In contrast to parasitism in many unitary animals, virulence is low in the host bryozoans, which may be a consequence of the extensive vertical transmission between generations of bryozoans via the statoblasts. Surprisingly, myxozoan infected colonies of *Fredericella* generally had faster growth rates and showed lower mortality than uninfected colonies, although statoblast production rates were diminished.

Video made the first of several appearances at the conference in the presentation by **Tim Wood** (Wright State University, Dayton) on the remarkable discovery of a cyphonautes larva in *Hislopia malayensis*. This is the first record of such a larva in a freshwater ctenostome. Tim's study of embryogenesis and larval metamorphosis included the important observation that the larval gut appears to become part of the gut of the adult. In contrast, the gut of cyphonautes larvae in marine bryozoans does not carry through into the adult. It was suggested that the condition found in *Hislopia* represents the most primitive state known for gymnolaemate bryozoans.

Emmy Woss (University of Vienna) described her detailed studies of the relative importance of different modes of reproduction and dispersal in populations of the phylactolaemate *Plumatella fungosa* inhabiting an Austrian pond. Investment in sexual reproduction was found to be low compared with that in sessoblasts and floatoblasts. **Hanna-Leena Hartikainen** (University of Reading) and collaborators have also been studying statoblasts but as a means of locating adult populations of *Lophopus crystallinus*. In Britain this phylactolaemate is regarded as sufficiently endangered to have been listed as one of 391 species in the UK Biodiversity Action Plan. The discovery of statoblasts in debris samples has increased the number of known British populations from 3 to 16, raising the question as to whether the perceived rarity of the species is real or illusory, although it is clear that the species has declined spectacularly in some regions such as the Norfolk Broads where it was once extremely abundant.

Recruitment and substrates formed the theme for Monday afternoon's first session. **Chris Schneider** (UC Davis) is interested in the settlement behaviour of hederellids, a predominantly Devonian group of supposed cyclostomes (but see the report of Mark Wilson's talk below). Hederellid species identification is difficult but nonetheless Chris succeeded in identifying up to 13 species per assemblage in the Middle and Upper Devonian of the US Midwest. She found that spiriferid brachiopods were the preferred substrates for hederellids, and attributed the decline of hederellids at the end of the Devonian to the waning abundance and diversity of these host substrates.

Spirally-growing colonies of the cheilostomes *Setosella vulnerata* and *Setosellina capriensis* formed the focus of the talk given by **Antonietta Rosso** (University of Catania). The availability of large samples from two modern sites off eastern Sicily allowed Antonietta to compare substrate utilization and colony shape in sympatric populations of the two species. She found that *Setosellina* preferred smaller substrates and also sometimes developed into pseudolunulitiform colonies of a type not observed in *Setosella*. Next **Penny Morris** (University of Houston-Downtown) read a paper, coauthored with Hank Chaney and the late Dorothy Soule, on the bryozoans colonizing black corals in Hawaii. A total of 13 anascan, 2 cribrimorph, 14 ascophoran and 12-13 cyclostome species could be recognized. **Yvonne Bone** (University of Adelaide) closed the session with a report of her collaborative research

on epiphytic bryozoans colonizing seagrasses. In South Australia the long-lived stems of the seagrass *Amphibolis* form particularly important bryozoan substrates, hosting at least 40 species whose skeletons generate carbonate sediment that is deposited locally or transported shoreward, accumulating at an estimated rate of 7-8 cm per thousand years. Analogous seagrass communities can be identified in the Pliocene Roe Calcarene using the presence of characteristic bryozoans such as *Densipora corrugata*.

The vexed topic of bryozoan phylogeny surfaced following the afternoon refreshment break. **Eckart Håkansson** (University of Copenhagen) audaciously suggested the Southern Hemisphere to be the centre of origin for most of the clades that today dominate cheilostome biotas. His argument hinged principally on the global or local extinctions at the ends of the Maastrichtian, Danian and Thanetian stages that seemingly removed large numbers of Northern Hemisphere taxa usually thought to be the ancestors of younger bryozoans. Molecular trees and clocks may one day enable the testing of Eckart's hypothesis. **Mattias Obst** and **Judith Fuchs**, in a paper read by Judith (Göteborg University), revealed the potential value of molecular data to understanding bryozoan phylogeny. They have completed an analysis of the phylogenetic relationships between 27 Swedish bryozoan species using 2597 base pairs from three genes. Surprisingly, ctenostomes were found to be polyphyletic and cyclostomes paraphyletic in at least some of the trees generated.

Alex Gruhl (Free University of Berlin) told us about the work he has been doing with Thomas Bartolomaeus on the muscular systems of bryozoan larvae. Detailed descriptions of larvae exist for only about 11 bryozoan species, hindering the potential use of larval characters in phylogeny. Alex is remedying this shortage of information by applying staining and confocal laser scanning microscopy. His elegant research has revealed an astonishing complexity of muscles in several bryozoan species. Another anatomical study was presented by **Andrew Ostrovsky** (University of Vienna). Andrew has studied brooding in no fewer than 247 species of cheilostomes, distinguishing 5 major types: external membranous brood sacs, internal brood sacs, intracoelomic brooding, acanthostegous brood chambers, and ovicells. He has also clarified the terminology of brood chambers.

Amalia Herrera Cubilla (STRI, Panama) reported her collaborative research on the phylogeny of Panamanian cupuladrians. A good agreement exists between morphology and molecules in these free-living cheilostomes, and cladograms are mostly consistent with stratigraphical age data. Both these findings offer comfort to palaeontologists. The final lecture of the day was given by **Dennis Gordon** (NIWA, Wellington) on post-2000 detection of alien bryozoan species in New Zealand waters. Although ships have been visiting New Zealand for more than 250 years, the increase in arrivals of pleasure craft from the South Pacific has led to an explosion of warm-water alien species in recent years - 25 such species have been recorded for the first time since 2000. **Abby Smith** (University of Otago) continued the New Zealand theme by showing a video of the research of her students who were unable to attend the conference.

The second day of lectures began with a paper by Aaron O'Dea (STRI, Panama) and **Eckart Håkansson** (University of Copenhagen), read by Eckart, on bryozoan zooid size variations leading up to the end-Cretaceous (KT) extinction horizon in Denmark. Using collections made from the top 4 metres of the Maastrichtian at the famous Nye Kløv section, the sizes of ancestrulae and distal periancestrular zooids were tracked in several cheilostome species. A

spike of small-sized zooids suggests a rise in seawater temperature just before the KT boundary.

Scott Tompsett (University of Wales Aberystwyth and NHM, London) has recently commenced a combined morphological, molecular and palaeontological project on *Schizoporella* in Europe. One of his aims is to see how well species defined using skeletal morphology match with genetically defined species. To this end Scott pointed out some problems in defining and analysing the shape of the primary orifice, a character considered to be of great importance in morphology-based taxonomy.

Almost nothing is known about the developmental genetics of bryozoans but **Maggie Amui**, together with her colleagues Uri Frank and Wallace Arthur from the National University of Ireland, Galway, has been busy filling this crucial gap in our knowledge. Maggie used a labelled probe to show the expression of the homeobox gene *Distal-less* in *Membranipora membranacea*. As expected from its role in other animals, this gene is expressed in the tentacles but also seems to be expressed in the central nervous system. The stem cell gene Oct-4 was found to be expressed in buds and developing polypides at the growing edge.

Last up before the coffee break was conference host **Steve Hageman** describing his work with Maja Novosel (University of Zagreb) on zooid size variation. Only one-quarter of the Adriatic cheilostomes analysed showed the expected pattern of having a higher variance in zooid size in the northern Adriatic where annual variation in temperature is greatest, casting some doubt on the universality of using levels of bryozoan zooid size variation to estimate seasonality (MART analysis).

Yasser El Safori (University of Cairo) made a fleeting appearance at the conference to deliver two talks and preside over three posters. His two coauthored lectures concerned recent bryozoans collected from the shores of the East Nile Delta and the Red Sea. Yasser noted how sites that yielded abundant bryozoans one year could be barren the next.

The next few papers turned our attention to far colder parts of the world than Egypt. **Abby Smith** (University of Otago) told us about carbonate production by bryozoans living at depths of 500 metres beneath the Ross Ice Shelf in Antarctica. Conspicuous growth checks in a branch of *Cellarinella nutti* showed that this 16-17 year-old branch had produced about 20 mg of calcium carbonate per year. From published images showing population density on the sea-bed, Abby was able to estimate that *C. nutti* could produce 0.3-1 g of calcium carbonate per metre² per year, roughly an order of magnitude less than sediment production by temperate bryozoans.

A series of glaciations impacted the southern continents during the Late Carboniferous and Early Permian. In a paper coauthored with Noel James, **Catherine Reid** (Queen's University, Ontario) showed us the results of her research on the bryozoans living immediately after these glaciations in what is now Australia. Not only did bryozoan diversity increase into lower latitudes, but cystoporates and rhabdomesines became progressively more important, while the simply constructed fenestrates of high latitudes with large zooids were replaced by fenestrates with more complex meshworks and smaller zooids.

Returning to the recent, **Piotr Kuklinski** (NHM, London), along with Paul Taylor, asked whether bryozoans are adapted (in the broadest sense of the term) for living in the Arctic.

This question was addressed by comparing avicularium development, autozooid sizes and skeletal mineralogy between Arctic species and congeneric relatives from warmer climates. Although the results were mixed, in most genera avicularia are fewer and relatively smaller in Arctic species, autozooids are larger, and skeletons usually comprise low-Mg calcite, with aragonite and high-Mg calcite being far less common than at lower latitudes.

Following on from the theme of human influence on bryozoan distributions introduced by Dennis Gordon earlier, **Bjorn Berning** (University of Graz) presented a strong case that modern bryozoan species distributions in the north-east Atlantic and Mediterranean are very much due to the effects of shipping. Evidence for this conclusion can be found in the high proportion of shared species between the North Sea and Mediterranean at the present day compared with the Pliocene before humans were around.

Jo Porter (University of Wales Aberystwyth) read a paper coauthored with Chiara Lombardi (La Spezia) and several others on the problem of resolving species identity in recent populations of the cheilostome *Pentapora*. The question of whether differences in colony morphology and growth rates between populations indicate the existence of more than one species may perhaps only be answered with genetic data which the team is busily obtaining. Jo showed us some fascinating time-lapse images of a colony from Skomer that became progressively more heavily fouled by sediment and epibionts in the 6-7 years leading up to its eventual death.

The refreshingly varied blend of presentations that was a hallmark of the entire conference continued as **Andrej Ernst** (University of Kiel) summarized his researches on Devonian bryozoans. Based on over 650 thin sections, Andrej has been able to add much to our knowledge of European bryozoan diversity, showing how this peaked in the Emsian and Givetian stages.

Linda McCann from the Smithsonian Environmental Research Center in Maryland read a coauthored paper on DNA barcoding of *Conopeum chesapeakeensis*. Despite having been described for the first time only 12 years ago, this is one of the main fouling bryozoans found on ships hulls and has successfully transited from its type area in the eastern USA to the west coast of North America via the freshwater Panama Canal.

Attention swung back again to the Palaeozoic with a talk given by **Ariunchimeg** (Mongolian Academy of Sciences). Her impressive work has revealed 484 bryozoan species from some 200 localities around Mongolia. She has been able to establish 32 local assemblage zones, a rare example of the use of bryozoans in biostratigraphy.

The weather remained clement for the group photograph on the steps of the Belk Library. This was followed by the first of two dedicated poster sessions in the Grandfather Mountain Ballroom. In contrast to the practice at most meetings, posters were not displayed briefly, but were available for perusal Tuesday afternoon and all day on Thursday. The longer session and availability of good things to eat and drink, attracted most attendees, and made it possible to really study the posters, talk to their authors, and mingle with the group. Brilliant ideas were no doubt exchanged, and new joint research projects will no doubt arise from this opportunity. Topics covered in the poster session ranged from Recent faunal and ecological studies, to fossil bryozoan taxonomy. It also was an opportunity to present some projects that may benefit many IBA members over the long run: an Atlas of Cenozoic Bryozoa of

Northeastern Italy (**Giampietro Braga**), BryoZone: A unified bryozoan reference (**Scott Lidgard**), Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Bryozoa (**Judith Winston**) and three collection location initiatives (**Mary Spencer Jones**). Tanya Knowles won the Larwood Award for the best student poster for her display on the palaeoclimatic application of bryozoans in the Pliocene.

Wednesday was free, most of the delegates taking advantage of the opportunity to visit Blowing Rock and the Blue Ridge Parkway, and some watching Boone's Fourth of July Parade.

Following the second poster session, lectures resumed on Thursday with a brief historical perspectives session. **Mary Spencer Jones** (NHM, London) told us about Charles Darwin's bryozoans. Darwin took an early interest in bryozoans, reading a paper before the Plinian Society in 1826 on the ova of *Flustra* which he showed to be larvae. Five years later Darwin was onboard the 'Beagle'. The 106 slides of Darwin's 'Beagle' bryozoans in the NHM collections arrived at the NHM via Darwin's friend George Busk in 1852 after a mysterious period during which their whereabouts is unknown.

The life and work of Alice Robertson was the subject of a talk by **Mary Sears** and Bob Woollacott (Harvard University). Robertson, who taught biology at Wellesley College where Hillary Clinton was much later a student, is known for her monographic series on the bryozoans of the West Coast of North America. The lack of a ctenostome volume was explained by Mary to be the consequence of a catastrophic fire at Wellesley in 1914.

Michelle Carter (NIWA and Victoria University, Wellington), with Dennis Gordon and Jonathan Gardner, reviewed the early history of research on avicularia. Michelle's new research on these still enigmatic heterozoids has applied SEM, TEM and confocal laser scanning microscopy. Michelle showed a video of an amphipod struggling in the grasp of an avicularium of *Bugula flabellata*, and some intriguing SEM images of tufts of cilia protruding from avicularian orifices.

Maja and Anjelko Novosel's fine video of Adriatic bryozoans was followed by a business meeting during which Priska Schäfer presented her mouthwatering plans for the 2010 IBA Conference in Kiel.

After lunch **Norbert Vavra** (University of Vienna) entertained us in a way that is unique to Norbert. A small bryozoan fauna from the Miocene Retz Formation has the distinction of coming from Norbert's own birthplace. The Retz fauna is notable for containing three cribrimorph genera introduced by Otto Kuhn. Back to the recent and a talk by **Matthias Obst** (Kristineberg Marine Research Station), with Judith Fuchs, on the work they are undertaking on bryozoans as part of an ambitious initiative to describe the 60,000 animal and plant species known from Sweden within the next 20 years. Bryozoan samples from over 250 benthic stations have so far revealed 77 species, 15% of which are new records for Sweden. Interestingly, all of the diversity hotspots containing more than 10 species are from depths of less than 40 metres.

Lower Triassic bryozoans are regarded as something of a rarity. According to **Hans Arne Nakrem** (Natural History Museum, University of Oslo), in a paper coauthored with Andrej Ernst, a mere 6 species have been recorded worldwide. These all belong to the trepostome

genus *Arcticopora* which in Arctic Canada occurs as monospecific assemblages forming thin bryozoan limestones. Descending down the stratigraphical column to the mid-Palaeozoic, a time when trepostomes were far more diverse and abundant, **Françoise Bigey** (Université Pierre & Marie Curie, Paris) summarized the distribution in time and space of Late Silurian and Devonian bryozoans in France.

Judy Winston (Virginia Museum of Natural History) took us through to the afternoon refreshment break with a talk on the bryozoans associated with oceanic mangroves in Belize. The dominant bryozoans on mangrove roots are the same as the species found in fewer numbers in cryptic coral reef habitats. Unfortunately, the development of beach resorts is threatening the habitats of these unique Belize mangrove bryozoans.

Joachim Scholz (Senckenberg Museum, Frankfurt) had the rare distinction of reading a paper coauthored with two eminent but deceased bryozoologists, Ehrhard Voigt and Gilbert Larwood. The topic was the Cretaceous cribrimorph *Ubaghsia*, remarkable for the complex superstructure overlying its zooids. Joachim reported that approximately one million specimens from the Voigt Collection are now in Frankfurt awaiting our attention.

New fishery collections in the Aleutian Islands have provided a treasure trove of bryozoans for **Matt Dick** (Hokkaido University), with up to 90 species in a single trawl sample. Among these are species of *Monoporella*. Only four species of this cheilostome genus have been described previously worldwide but Matt has discovered six new species in the Aleutians alone, including a cellariform species. In-situ radiation may be responsible for this unexpectedly high diversity.

Tanya Knowles (University of Reading and NHM, London) read a paper on Pliocene *Floridina* from eastern North America, the systematics of which has rested dormant since the work of Canu and Bassler almost 100 years ago. Astogenetic gradients in *F. regularis* were quantified by Tanya, and the importance of excluding zooids from the primary zone of astogenetic change when undertaking MART analyses was demonstrated.

Masato Hirose (Hokkaido University) gave a presentation that won the Larwood Award for the best student talk. His elegant and thorough research on the phylogeny of Japanese plumatellid phylactolaemates has successfully applied mtDNA in conjunction with analysis of statoblast morphology and the structure of the ectocyst of adult colonies.

A group of enigmatic fossils called hederelloids have been affiliated with both cyclostomes and phylactolaemates in the past. **Mark Wilson** (College of Wooster), in collaboration with Paul Taylor, presented a review of the morphology of hederelloids. Taking into account all of the morphological characters known in hederelloids, the closest resemblance with living organisms seems not to be with bryozoans but rather phoronid worms, particularly the pseudocolonial boring species *Phoronis ovalis*.

Continuing his collaborations with the deceased, **Joachim Scholz** showed us a film of phylactolaemate biology made by the late Japanese bryozoologist Professor S. Oda.

Friday dawned too soon for many of the revellers who had played pool long into the night at a bar in downtown Boone after the conference dinner. **Rolf Schmidt** (Museum Victoria) had the unenviable job of beginning the final day of talks. Scarcely any bryozoans have been

described from the Late Cretaceous or Paleocene of Australia yet the presence of significant bryozoan faunas of this age in the Carnarvon Basin of Western Australia promises to shed important light on the KT extinction and biotic recovery, as Rolf was able to demonstrate.

University of Southern California student **Catherine Powers**, supervised by Dave Bottjer, has been looking at patterns of onshore-offshore bryozoan distribution from the Permian to the Jurassic. Catherine has assembled a database of more than 400 bryozoan assemblages classified into 7 environments and 7 time bins. Starting in the Middle Permian, bryozoans began to disappear from offshore environments and retreated into the nearshore, probably reflecting the spread of anoxia into shallow waters which was likely one of the factors involved in the famous end Permian mass extinction.

Laís Ramalho (Museu Nacional, Rio de Janeiro) diverted our attention back to the recent when describing huge drifts of bryozoans that have been ruining a tourist beach in Santa Catarina Province, Brazil. Thirty tonnes of material, mostly of *Electra bellula* with some *Membraniporopsis tubigera*, had to be removed from the beach in March 2004 alone. The exact cause of the drifts has yet to be established but, ironically, it may be linked with offshore dredging work to obtain sand to replenish the beach for the benefit of the tourists.

We were taken up to morning coffee by **Scott Lidgard** (Field Museum, Chicago). Always thought-provoking, Scott this time told us about his research on predation on bryozoans and how it can affect all stages of the life cycle. Bryozoans are eaten by animals belonging to eight different phyla but Scott made a good case that they are an energetically viable food resource only for small predators.

Joe Pacht (Indiana University-Purdue University) told us of his collaborative research with Bob Anstey on anagenetic evolutionary rates in the Ordovician trepostome *Peronopora*. Intrinsic rates were found to be similar to those reported from other groups. **Michelle Carter** made a second appearance on the podium to describe further aspects of her research on avicularia, noting variations in avicularian orifice anatomy between species and between different types of avicularia within the same colony. **Emmy Woss** also spoke for the second time, on this occasion applying three-dimensional reconstruction from serial thin sections to investigate tissue formation in germinating statoblasts.

The final lecture session began with a talk given by **Kamil Zágorsek** (National Museum Prague) describing some collaborative research on the stable light isotopic composition of bryozoans from a Miocene locality in the Czech Republic. Whereas the cyclostomes analysed had similar values to co-occurring foraminifera, the cheilostomes showed values that deviated, possibly due to vital effects. Isotope geochemistry has also been applied by **Marcus Key** (Dickinson College, Pennsylvania), Patrick Wyse Jackson and coworkers to the problem of the origin of brown deposits in fossil trepostomes. The low $\delta^{13}\text{C}$ values of brown deposits is consistent with their origin from the degradation of the organic matter of brown bodies formed by degenerating polypides.

Maja Novosel reported on research in progress with her coauthors on morphological variations within and between populations of *Pentapora fascialis* in the Adriatic Sea. Colonies from sites in the southern, central and northern Adriatic vary both in colony-form and the proportion of calcite to aragonite in the skeleton. The challenge is to determine to what extent these variations are environmental or indicate genetic differences, perhaps even

the existence of cryptic species. **Mike Winson** (University of Wales Aberystwyth) next read a coauthored paper on the detection of bryozoan metabolites and bacterial quorum sensing factors, showing potential in the search for natural products.

Every conference has to have a final speaker and on this occasion the honour fell to **Priska Schäfer**, our host for the next conference (perhaps she will return the ‘favour’ by scheduling Steve Hageman at the very end of the programme in Kiel?). Priska talked about her work with Beate Bader on geochemical variations in the skeleton of *Cellaria sinuosa*. Asking whether Mg/Ca ratios in bryozoan skeletons reflect ambient temperatures as they do in foraminifera, Priska found a strong biological control exerted by *C. sinuosa* which may limit the applicability of Mg/Ca ratios in palaeoenvironmental inference.

Kamil Zágorsek showed photographs of a new bryozoan exhibit at the National Museum in Prague prior to commencement of the final business meeting in which Antonietta Rosso and Rolf Schmidt promoted the delights of Catania and Melbourne respectively as venues for the 2013 IBA Conference, and Paul Taylor passed the presidency of the IBA to Judy Winston, along with a symbolic tomahawk.

The conference ended on a jovial note thanks to **Masato Hirose** who had brought along a Japanese TV programme showing the delights of cooking the freshwater bryozoan *Pectinatella magnifica* in a variety of different ways. The gourmets who consumed this foul-smelling, jelly-like bryozoan suffered severe stomach upsets the next day but apparently survived to continue their culinary journey through the animal kingdom. The chances of humans being added to Scott Lidgard’s list of bryozoan predators remain slim.

Paul D. Taylor
Judith E. Winston

Ten Best Conference Photos

At the recent North Carolina conference participants were invited to enter a competition for the ten best photos. All the submissions were so good it was really difficult to select only ten. The winning shots are shown on the following pages. Many thanks to all the photographers!









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3. Andrej Ernst
4. Joachim Scholz
5. Joachim Scholz
6. Hans Arne Nakrem
7. Hans Arne Nakrem
8. Hans Arne Nakrem
9. Andrej Ernst
10. Joachim Scholz

Report from the Advisory Council

The IBA Advisory Council met 2 July 2007 in Boone, North Carolina. Members present were Matt Dick, Ekhart Håkansson, Hans Arne Nakrem, Beth Okamura, Jo Porter, Antoinetta Rosso, Priska Schäfer, Rolf Schmidt, Abby Smith, Paul Taylor, Judy Winston, Tim Wood, and Patrick Wyse Jackson.

Finances. Abby Smith presented the Treasurer's Report (see Business Meeting minutes). Now that the IBA no longer faces the large expense of printing and mailing an annual newsletter there is a healthy balance in the bank account. There was strong sentiment for establishing a fund to help students attend conferences. How should that be set up? Should we try for an endowed fund or one that is depleted every three years? And how should student applicants be selected? A subcommittee was established to look into these and other pertinent issues: Beth Okamura, Judy Winston, Abby Smith, and Jo Porter will report back to the Advisory Council by July, 2008.

Constitution. Amendments were formally proposed and approved (see Business meeting minutes).

Nominations. A committee was established to solicit nominations for President-Elect and six new Advisory Council members. Serving on the committee will be Hans Arne Nakrem, Ekart Håkansson, and Dennis Gordon.

Website. Rolf Schmidt indicated his willingness to continue serving as webmaster, and we decided to include this position now as *ex officio* member of the Advisory Council. The website certainly needs revision, but what information and links would be most useful? The IBA Secretary will invite suggestions from the membership and also ask people to submit updated statements of research interests and website addresses.

We recognized Phil Bock's website as critically important for bryozoologists and deserving of IBA support. It was proposed and approved that IBA funds be explicitly set aside for such bryozoan-related activities.

Larwood Symposia. There had been some concern that Larwood symposia might erode attendance at IBA conferences. However, this does not seem to be the case. The next Larwood meeting will be in March 2008 in Vienna, hosted by Andrew Ostrovsky. An "Australarwood" is also planned for January 2008 hosted by Dennis Gordon.

Timothy Wood, IBA Secretary

Minutes of the Conference Business Meeting

For scheduling reasons there were actually two general business meetings: a brief one on Thursday, July 5 and the main one the following day. These minutes will combine the two.

Recognition of deceased members. Since the 13th Conference in Chile the IBA has suffered the loss of several members. President Paul Taylor led participants in extended applause to honor the memory of those deceased members. They include:

Elena Androsova (September 1915-2004)
Peter Arnold (14 May 1949-7 March 2006)
Kristen Brood (1941-2004)
Ivar Hessland (**-2006)
Diethardt Jebram (**- late autumn 2005)
Iraida Morozova (** - 4 June 2007)
Shuzita Oda (1921-14 January 2003)
Dorothy Soule (8 October 1923-5 March 2005)
Nils Spjeldnaes (3 Jan 1926-28 March 2006)
Ehrhard Voigt (28 July 1905-22 November 2004)
Paul Whittlesea (** - 1 April 2007)
Yang Jing-Zhi (**- 30 March 2004)

Treasurer's Report. IBA Treasurer Abigail Smith submitted a financial statement for the period of January 2004 to June 2007. There are three separate accounts: in the UK, US, and New Zealand. The following summary combines all three. A copy of the full statement is available from either the IBA Treasurer, Secretary, or Archivist.

	Total Equivalents, June 2007		
	NZD	USD	Euros
Financial position 1 Jan 2004	6436	4852	3623
Income: 1 Jan 2004 to 30 June 2007	9342	7044	5260
Expenditures 1Jan 2004 to 30 June 2007	7117	5366	4007
Financial position 30 June 2007	8661	6530	4876
Net financial period	2225	1678	1253

Amendments to the IBA Constitution. Amendments had first been discussed in the *IBA Bulletin*, 3(2), then formally proposed July 5 and approved in the Business Meeting July 6. They are as follows:

SUMMARY:

1. IBA membership will no longer be contingent upon payment of dues.
2. Membership applications would be received by the IBA Secretary.
3. Nominations for President-Elect will be approved at the triennial business meeting, but the election will be conducted by email before the full membership.

SPECIFIC WORDING (Changes in italics; deletions in parentheses)

Article III, Section 2. The membership consists of all members of the Secretary's roll at time of adoption of this Constitution. Qualified persons become members upon application to the Secretary. (*Continuation of individual membership is contingent upon timely payment of assessed dues.*)

Article IV, Section 2(b). The Secretary shall *receive membership applications and* maintain the official files of the Association. An accurate copy of the membership list shall be supplied to each member *at least* annually. The Secretary shall also supply to each member a *Bulletin (Newsletter)*, at least annually. Following the triennial conference the Bulletin shall include minutes of the business meetings and a report of the conference.

Article IV, Section 3. At the triennial business session at the International Conference, *the Committee on Nominations shall present a list of candidates for office.* Additional nominations may be made by members and/or by letter from members absent. *Officers other than President-Elect shall be elected by the members present. An election for President-Elect shall be conducted by the Secretary within 2 months of the triennial conference, by closed ballots received from the full membership by either email or post.* The term of office shall be three years for the President and six years for the Secretary, Treasurer, and Conference Proceedings Facilitator. The Secretary, Treasurer, and Conference proceedings Facilitator may stand for re-election.

These amendments were all approved.

Nomination of new Advisory Council members. There are 12 elected members of the Advisory Council, all serving for two terms. At each Conference the participants normally elect six new members. The Nominations Committee (Hans Arne Nakrem, Eckart Håkansson, Dennis Gordon) presented the roster of new candidates for the Council: Laís Ramalho, Caroline Buttler, Ariunchimeg Yarinpil, Kamil Zagorsek, Andrej Ernst, and Scott Lidgard. The roster was approved with no additions. President Paul Taylor thanked outgoing Council members for their service: Matthew Dick, Eckart Håkansson, Hugo Moyano, Hans Arne Nakrem, Antonietta Rosso, and Rolf Schmidt.

16th IBA Conference, 2013. Antonietta Rosso and Rolf Schmidt each invited the IBA to consider their home regions for the 2013 IBA Conference: Catania (Italy) and Melbourne (Australia) respectively. In a departure from tradition, it was suggested that the voting for these two venues be opened to the entire IBA membership. This will be done within two months in combination with the voting for President Elect.

Photo Competition. IBA Secretary Tim Wood invited participants to submit Conference photos. The ten best photos would be selected by *IBA Bulletin* "editors and staff" for publication in the next edition.

New members. A number of new IBA members were present at the Conference for the first time. They were now recognized and presented with a cd of the complete *IBA Bulletin* archives. These members included Ann-Margaret Amui, Paola Florez-Romero, Judith Fuchs, Alexander Gruhl, Hanna-Leena Hartikainen, Masato Hirose, Tanya Knowles, Matthias Obst, Catherine Powers, Catherine Reid, Chris Schneider, Scott Tompsett, and Ariunchimeg Yarinpil.

Gilbert Larwood Award. At each Conference the Advisory Council arranges for the designation of Best Presentation and Best Poster by a first-time IBA members. This year the judging for the award was provided by Paul Taylor. The award for Best Presentation went to Masato Hirose, and for Best Poster to Tanya Knowles.

Conference Host. President Paul Taylor thanked Conference Host Steven Hageman for an outstanding job, and was joined by participants in an enthusiastic round of applause. A plaque presented to Steve reads, “The International Bryozoology Association gratefully acknowledges the initiative, hard work, creativity and dedication of Dr. Steven J. Hageman and Appalachian State University in hosting the 14th conference at Boone, North Carolina, July 1-7, 2007.”

New IBA President. Paul Taylor concluded his term of office by officially recognizing the new IBA President, Judith Winston. As her first official act, Judy introduced Masato Hirose, who had brought with him a highly entertaining video from a Japanese television program in which a chef is challenged to prepare a complete and appetizing meal that featured the gelatinous freshwater bryozoan, *Pectinatella magnifica*. Following a showing of the video the business meeting was adjourned.

Timothy Wood, Secretary

Profiles of Candidates for IBA President-Elect

Editor's Note: With the new amendments to the IBA Constitution, it is now official that candidates for IBA President-Elect will be elected by the entire IBA membership. Ballots have been distributed electronically with this Bulletin. The following profiles have been submitted by the nominees themselves

Eckart Håkansson

Current position. Professor of Geology; Geological Institute, University of Copenhagen, Denmark

IBA Member since 1971 (IBA, Durham).

Research interests include

- Ecology and biogeography of extinct and extant cheilostome bryozoans;
- Cheilostomes and the K-T boundary – extinction & recovery: Northern versus Southern Hemisphere
- Late Paleozoic bryozoans of the Arctic – ecology & biogeography

Professional activities related to the IBA:

- Participated in every conference since 1971;
- Attended all but one Larwood Symposia, and organized the first Larwood Symposium to take place outside the British Isles.
- Served on the IBA Advisory Council twice, most recently in the period 2001-2007

Other professional activities: Currently member of the steering committees in IGCP 522 Dawn of the Danian, and the Nordic research and educational platform NIR Network of Impact Research.

Marcus M. Key, Jr.

Current position. Professor of Geology, Dickinson College, Carlisle, Pennsylvania, U.S.A.

IBA member since 1985, and participated in every IBA conference since then.

Research interests: Using extinct and extant bryozoans to address questions of functional morphology, epibiosis, and the evolution of skeletal composition. This research has benefited from numerous international colleagues and from funding from the National Science Foundation and the American Chemical Society's Petroleum Research Fund.

Professional Activities related to the IBA:

- Executive Council

- Larwood Award selection committee
- Boone conference volume co-editor

Other professional activities: Chair of the Treasurer Auditing Committee for the Paleontological Society; member of Phi Beta Kappa, Sigma Xi, Paleontological Society, Geological Society of America, Harrisburg Area Geological Society (held Secretary, Vice President, President offices), International Palaeontological Association, Society for Sedimentary Geology.

Honors: Excellence in Teaching Award from Omicron Delta Kappa Honor Society at Dickinson College; Constance and Rose Ganoë Memorial Award for Inspirational Teaching at Dickinson College.

Joachim Scholz

Current position: Curator at the Senckenberg Research Institute (Bryozoans, Brachiopods, Phoronids), Frankfurt am Main, Germany.

IBA member since 1989 (Paris IBA conference)

Research interests: Alpha-Taxonomy of Recent Bryozoa with priority in the Indopacific (current studies ongoing in the Gulf of Aqaba, and Japan); some aspects of bryozoan ecology (biofilms, competition, growth forms as indicator); some aspects of science history (Japan of the Meiji Period, and regional history in Frankfurt and surroundings, evolutionary theory and history of evolutionary theory in Russia/Soviet Union); reef ecology and reef protection, Cretaceous and Paleogene Bryozoa; the latter is becoming the most important interest due to the huge E.Voigt legacy, and E.Voigt collection kept now in Frankfurt.

Other professional activities: Former member of the IBA Advisory Council; since 2007 member of the Board of the "Palaeontologische Gesellschaft;" head of the Archives of the "Senckenbergische Naturforschende Gesellschaft" (Senckenberg Nature Research Society); lecturer at the Palaeontology and Zoology Departments of the Johann Wolfgang Goethe-University in Frankfurt am Main (on the subjects 1. of Theories of the Biosphere, 2. Neogene Mammals & Applied Paleontology, and 3. Bryozoology/Tentaculates). Occasionally supervising thesis works of students dealing with bryozoans.

Honors. Alexander von Humboldt Prize 2001 for the monograph, *Eine Feldtheorie der Bryozoen, Mikrobenmatten und Sedimentoberflächen* (a field theory of bryozoans, microbial mats and sediment surfaces)" published in 2000, and funded through a "habilitation scholarship" by the German Research Agency (DFG). Previously, graduate Studies and PhD funded by two scholarships of the "Studienstiftung des Deutschen Volkes". Stayed altogether two year in Philippines for projects in Coastal Area Management.

Patrick Wyse Jackson

Current position: Lecturer in Geology and Curator of the Geological Museum at Trinity

College, Dublin, Ireland.

IBA member since 1987.

Research interests. Taxonomy, functional morphology and biology of Palaeozoic bryozoans, particularly those from the Ordovician and Carboniferous; currently working on aspects of some Ordovician faunas with Marcus Key, and on the revision of the Order Fenestrata for the forthcoming edition of the Treatise on Invertebrate Paleontology with Ken McKinney. Patrick has published over thirty papers on his bryozoan research, and over 150 notes, papers, and books in other fields including the history of geology. On account of his publication record he was elected a Fellow of Trinity College, Dublin in 2006.

Activities related to the IBA. He has served on the IBA Council in various capacities since 1992, and is currently the Conference Volume Faciliator. He organized the pre-conference field trip held in Ireland before the 1992 Swansea conference, was the conference host for the 2001 Dublin conference, and also hosted the 2006 Larwood meeting. He jointly edited two IBA conference volumes (Dublin 2001 and Chile 2004), and with Mary Spencer Jones edited Annals of Bryozoology, published in 2002 by the IBA. A second volume of papers will appear later this year.

Other professional activities. Patrick is a member of a number of international palaeontological societies, and has served a number of international and local societies in various capacities. He is a past-President of the Dublin Naturalists' Field Club, and the Irish Geological Association, and past-Chairman of the Geological Curators' Group. He edited the journal The Geological Curator for thirteen years and he is currently editor of Earth Sciences History, the journal of the History of Earth Sciences Society. He is a member of the International Commission for the History of Geological Sciences, and the current Chair of the Royal Irish Academy Committee for the History of Irish Science.

16th IBA Meeting 2013

Italian proposition



Catania University Central Building

The Meeting will be hosted by the **University of Catania**, organised by Antonietta Rosso and her fellows and co-operators.

The pre-conference field trip will be organised by Giampiero Braga and Anna Occhipinti Ambrogi with the cooperation of Andrea Balduzzi and Silvia Cocito. Mina Taticchi will cooperate for fresh water bryozoans during the post-conference field trip.

Through its international airport, Catania is directly connected to many European cities with nonstop flights or flights including intermediate call in Rome or Milan. The airport is very close to the town and connected by bus to the centre, each 15 minutes. The use of train or car is advisable only for people interested in a tour of some Italian localities.

Pre-conference field trip (6 days): 3rd week of September: north-eastern Italy: Veneto. Coenozoic and Recent bryozoans.

It will include 3 “biological” and 3 “palaeontological” days. During the first part, to be held in the Chioggia-Venice area, living benthos, including bryozoans from shallow marine and brackish waters from the Po delta system, in the northern Adriatic, will be collected and examined in the Chioggia laboratory. Visits to fishery ponds, locally called “valli da pesca”, and to the Venice lagoon are planned. In the second part, some classical localities, such as the “Pesciara di Bolca” and the Priabonian bryozoan-rich layers from Priabona, the Natural History Museum of Verona and the town of Vicenza with its beautiful buildings designed by Palladio will be visited.

People participating in the first field trip can reach the area flying to Venice or to Verona, both directly connected to several European and extra-European cities. Train could be more suitable for people coming from Central Europe regions.

At the end of the field-trip the transfer to Catania is easy by direct flights from Verona (presently, about 70 Euro).

Meeting in Catania: last week of September

The Meeting will take place at the University of Catania. Accommodation will be possible in several small hotels in the historical, Baroque-styled, centre of the town, not far from the meeting hall. A mid-conference field trip is planned to the Etna Natural Park and Taormina.

Several small hotels in Catania centre-town have prices ranging from 40-50 to 70 Euro. Cheaper prices could be available for students. The distance from the most eligible lecture hall about 10 minutes by bus, 15-25 minutes by foot. Several bars are placed near the lecture hall for quick lunch. For dinner, many restaurants and pizzerias are located in the “historic Catania” with a wide range of possibilities and prices (from 10-15 Euro upward).



Catania main square with the S. Agata Cathedral and the Elephant, symbol of the city.

Post-conference field trip (6-7 days): 1st week of October: Sicily and southern Calabria. Permian to Recent bryozoans.

This field trip will leave from and return in Catania.

It will include a) 3 “palaeontological” days and a half, with visits to fossiliferous, mostly bryozoan-bearing, outcrops from Permian (Valle del Sosio) to Mesozoic (Giurassic and Cretaceous: Monti di Palermo and Hyblean plateau) to Coenozoic, mostly Pliocene and Pleistocene (Messina Strait zone, Catania area, Belice Valley) testifying from shallow infralittoral to bathyal environments; b) 2 “biological” days and a half, including dredging, diving (possibility of renting diving equipment and boat transfer on interesting sites about 25 Euro) and snorkelling in marine environments and examining collected specimens in laboratory; collecting freshwater bryozoans and statoblasts from small lakes. One additional day is planned to visit Etna’s craters and, possibly, lava flows. Some historical localities will be included in the tour.

Special attractions for accompanying members, during the meeting week, are located near to Catania (mostly less than 100 Km apart), most of which (Catania, Syracuse, Noto, Piazza Armerina and Ragusa Hybla) have been recognised as Human Heritage by the UNESCO.

-The **Catania** historical centre with its Greek and Roman monuments, the medieval castle built by Federico II Hohenstaufen, the baroque churches and buildings, the Liberty-styled villas; the numerous museums among which the Museo dello Sbarco, commemorating the American landing in Sicily during the II World War, including sites reconstructions and historical videos.

-The wide light sandy beach immediately South (10 minutes by bus) of Catania and the volcanic raised shores, immediately north of the town for bathing and snorkelling activities. Further North (15 Km from Catania) along the coast, the “Riserva Marina Isole Ciclopi” with its exciting bottoms.

-**Syracuse** with its Greek, Roman and modern monuments, among which the theatre and the archaeological museum, including a geo-palaeontological section, collections of prehistoric and ancient masterpieces, potteries and Roman glassworks.

-**Etna**, the highest active volcano in Europe offers different attractions like several craters, historical and recent lava flows, volcanic tunnels and caves produced by old lava flows and flourishing woods. Excursions at different difficulty levels are available.

-Piazza Armerina with its **Villa del Casale**, an imperial Roman house including thermal baths and the gymnasium, the floors covered by fine and delicate mosaics representing daily-life activities and hunting and mythological scenes.

-**Acireale, Noto, Ragusa Hybla** and other towns with their baroque buildings.

-**Caltagirone**, with its pottery laboratories and several other attractions.



Italy and Sicily with the Etna volcano and bryozoans wait for you.....in 2013!

IBA 2013 Proposal: Melbourne, Australia

Rolf Schmidt

Our proposal is to hold the IBA Convention in Australia for the first time. Melbourne is currently the home to the highest concentration of Bryozoologists in Australia (including Pat Cook and Phil Bock). Rolf Schmidt is a collection manager at Melbourne Museum, which would be honoured to host the conference proceedings. To get an overview of places talked about here check out this [Google Map](#). Any further queries can be sent to rschmid@museum.vic.gov.au. I look forward to welcoming you all down under!

Note: all costs in Australian dollars unless indicated otherwise (Aug 2007 rates: 1AU\$ ~ US\$0.80 ~ €0.60). Past costs listed for comparison. Prices and exchange rates will change by 2013.

Proposed Dates: 14th-18th January 2013 (weather: hot and dry-ish, av. 14°-26°C, several days over 35°C).

Registration cost: [*cf. USA 2007 = US\$320; Chile 2004 = US\$400*] aimed <\$500 (includes Venue hire, Catering, Ice-breaker function, Conference dinner, Mid-conference day-trip, Abstracts Volume, Conference Proceedings).

Sponsorship: possibly [Museum Victoria](#), Royal Society Victoria, Geological Society Australia



Venue and Facilities:

[Melbourne Museum](#) (Carlton Gardens, pictured above): [The Age Theatre](#), capacity 214, very modern technology; Activity Room for posters.

Access:

[Tullamarine International Airport](#) (25km, 20-30 minute drive north of CBD)

[Skybus](#) (\$15 on-way to CBD/Spencer Street, \$24 if you buy the return at the same time;

Taxi (ca. \$50 to the CBD)

Accommodation [*cf. USA 2007 = US\$45-US\$55/night; Chile 2004 = US\$30/night*]

[The Nunnery](#); opposite MM on Nicholson St, 5 minute walk to Museum; capacity of approx 150; prices: shared rooms from \$30/night; private rooms from \$65/night (incl. continental breakfast).

Food: Major food streets in CBD: [Lygon Street](#), Brunswick Street, [Chinatown](#), Swanston Street. “Counter meals” at Pubs (eg \$10 for “Pot and Parma” = beer and a Parmigiana). Lots of fast-food (all franchises, plus take-aways from any cuisine you want). In restaurants main meals usually \$10-\$25.

FIELD TRIPS: (*Cost of past field trips: USA 2007 = US\$720; Chile 2004 = US\$1000*)

The concept is for pre-conference participants to arrive in Adelaide, from where the trip takes them to Melbourne for the conference; while starting the post-conference trip in Melbourne, and finishing in Sydney from where delegates can depart (vice versa is also possible). These itineraries are rough, and an indication of what’s possible. Collecting is possible at most sites.

Pre-Conference Field Trip: (see the [Google Map](#))

Duration: ca. 8 days

Costs: Approximately \$1000 per person

Expected number of attendees: 25

Starting [Adelaide](#)

[Maslin/Aldinga](#) (Eocene-Oligocene)

[McLaren Vale Wineries](#)

Murray Cliffs (Oligocene-Miocene)

Coorong (recent Bryozoa)

Mt Gambier (Miocene)

[Great Ocean Road](#) (Oligocene-Miocene; 12 Apostles,

Finish Melbourne

Post-Conference Field Trip: (see the [Google Map](#))

Duration: ca. 8 days

Costs: Approximately \$1000 per person

Expected number of attendees: 25

Starting Melbourne

[Koonwarra](#) (Late Cretaceous fossil freshwater Bryozoa)

Bairnsdale (Miocene)

Palaeozoic fossil sites through Victoria and NSW (possibly via Canberra) going from Silurian through to Triassic; also Recent freshwater bryozoans

[Ulladulla](#) (Permian glacio-marine with well preserved fenestellids and trepostomes)

Hunter Valley (also [wineries](#))

Finish Sydney

(Another option is to go across to Tasmania which has very nice Palaeozoic bryozoan outcrops)

Other Activities (eg for Guests): (see the [Google Map](#))

Near CBD (walking distance, or with trams):

[Melbourne Museum](#) (Science, Indigenous, History & Technology exhibits; access to collections may be arranged)

[Royal Exhibition Building](#) (the only World Heritage listed building in Australia, and the only existing example from the age of international exhibitions still used for exhibitions)

[Immigration Museum](#) (History of immigrants to Australia)

[Scienceworks Museum](#) (Hands-on science & technology)

[Melbourne Zoological Gardens](#) (spacious and well-laid out zoo)

[Royal Botanical Gardens](#) (Dennis will love this)

[Cook's Cottage](#) (Jame Cook's parents' house brought over from England)

[Queen Victoria Markets](#) (buy your [ugg boots](#) here)

[State Library](#) (exhibits [Ned Kelly's](#) armour)

[Melbourne Aquarium](#) (stand among sharks)

[Federation Square](#) (incl. [National Gallery of Victoria](#), [ACMI](#))

[Koorie Heritage Trust](#) (Aboriginal Gallery)

[South Bank](#) (lots of restaurants; also [Crown Casino](#))

[Melbourne Cemetery](#) (includes [Elvis Presley Memorial](#))

[Chapel Street](#) precinct (famous shopping area, mainly fashion)

[Melbourne Cricket Ground](#) (Commonwealth delegates will know this one)

Near Melbourne (day trips, eg mid-conference excursion):

[Philip Island](#) (penguins)

[Healsville Sanctuary](#) (native animal zoo)

[William Ricketts Sanctuary](#) (sculptures of indigenous people)

[Marysville](#) (with [Bruno's Sculpture Garden](#))

[Dandenong Ranges](#)

[Macedon Ranges](#), [Daylesford](#) (day-spas) & [Hanging Rock](#) (from the classic Aussie movie)

[Werribee Open Range Zoo](#) & [Werribee Park](#) (large mansion & gardens)

In Memorium: Ling-Huang Lu (1933-2007)

Ling-Huang Lu, a research professor of Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGP CAS) was born in August 1933 in Suzhou and died on July 9, 2007 in Nanjing after less than a half year's fight against cancer. He was a member of the IBA.



In August 1955, as a graduate of the Department of Geology, Nanjing University, Ling-Huang entered the service in the NIGP CAS, and began his scientific studies of fossil bryozoans. During 1957-1963, when he interested in the bryozoans, and as a graduate student with a part-time job, he specialized in Fossil Bryozoology with Professor Jing-Zhi Yang as his supervisor. After receiving his Master's degree under supervision of the CAS in September 1963, he was filled with ardor and sincerity and threw himself into fossil bryozoan research until his retirement from the NIGP in August 1993. He published over 60 papers in his 38 year career including a period after retirement. In his research work about Paleozoic (especially in Carboniferous and Permian) bryozoans from across China, especially the classic sections on the south, southwest, and northwest China he made great contributions. In addition, he opened up a new research field for Cenozoic bryozoans in China. In the early 1990s, as one of the chief members of the Multidisciplinary Oceanographic Expedition Team of CAS to the Nansha Islands, he or he and his co-authors published several important papers on Cenozoic bryozoans or others from South China Sea, such as, "Quaternary Bioremain Sediments of the Nansha Island and the Neighbouring Sea Area", "Holocene Bryozoa from the Nansha Sea Area", and "Holocene Cheilostome Bryozoa from Nansha Sea Area." Their distinguished results in this field were acknowledged by their receipt of the first class prize of the natural science of CAS in 1994.

Ling-Huang was always amiable and easily approachable, simple and unadorned, and conscientious in his work. He was keen on Beijing opera, and although he was only an amateur, he would have liked to come on stage to sing for every body if the opportunity had ever arisen. Although he went the way of all flesh, his memory remains clear among all those whose lives he touched.

- Fen-shen Xia

Welcome to BryoZone!

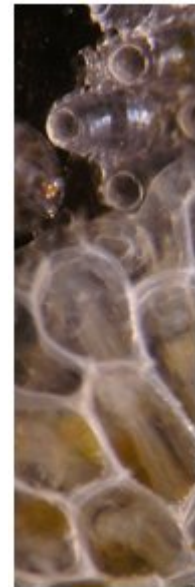
What is it? BryoZone is an Interactive Global Reference for Phylum Bryozoa, now online at <http://www.bryozone.com>.

The BryoZone project was conceived at the 13th International Conference of the IBA in Concepción, in 2004. We were “persuaded” by several of our colleagues that the bryozoan research community and other scientists would benefit greatly from a web-served relational database that brought together taxonomic, bibliographic, biogeographic and paleontological data as a single unified resource, basically taking the excellent Bryozoa Home Page to the next level.

Our goal was to lay the foundation for a dynamically accessible database open to contributions from the entire community, one that could evolve. Community members could then contribute missing pieces. BryoZone phase I had its 'coming out party' at this summer's 14th IBA conference in Boone. The initial phase of the project was funded by a grant from the Global Biodiversity Information Facility. It involved conversion and scrubbing of extensive lists of taxonomic information, compiled through decades of toil by Phil Bock, Dennis Gordon and the late Alan Horowitz. The development team included Phil Bock, creator of The Bryozoa Home Page; Dennis Gordon, NIWA, New Zealand; Scott Lidgard, Field Museum, USA; Rolf Schmidt, Museum Victoria, Australia; and Judith Winston, Virginia Museum of Natural History, USA. We took on the tasks of updating taxon names, researching taxonomic histories and synonyms, filling gaps in existing data sets, making decisions about uncertain genus and family assignments, validating this first round of data, and implementing the database and website.

BryoZone is an evolving project -- definitely a work-in-progress. While we have tried to find and correct errors of fact and omission, the little devils inevitably sneak past us. Therefore, we suggest double-checking the accuracy as new information and features are added and amended. We are now anxious to open up the project. We need to plan the next phase, including funding opportunities. We need to determine how to manage interactive collaborations. We need to set priorities for work already in progress. Some items are already in electronic form, awaiting the development of the database and website: Cheilostome and Cyclostome genus synonyms, about 13,000 bryozoan references (still being formatted). Others need lots of work: many thousands of species names and authorities not yet coded as valid or synonymies, images of species, locality information.

We need your input on many questions to help guide the project. Should we put the species names online without fully coding them? Are images a higher priority than localities? One of the most pressing needs is cogent funding strategy for new proposals. The work simply will not progress without funding for data scrubbing, programming and basic taxonomic homework. We are beginning to develop ideas for the next proposal and welcome your input. Our hoped-for submission date is next January. Please contact me at



slidgard@fieldmuseum.org for information about becoming involved with the project or with proposals, or send your questions or ideas, or (yes, I know) stuff we need to fix.

- Scott Lidgard

Bryozoan Research in the Hashemite Kingdom of Jordan

Since April 1, 2006, the German Academic Exchange Service DAAD has been funding the cooperation project "Establishment of a Middle Eastern Biodiversity Research, Training, and Conservation Network". Cooperating partners are the Senckenberg Research Institute and Natural History Museum, Frankfurt, Germany, the American University of Beirut, Beirut, Lebanon, the University of Jordan/Yarmouk University, The Marine Science Station, Aqaba, Jordan, Sana'a University, Sana'a, Yemen, and the University of Tehran, Tehran, Iran. The project is headed by Dr. Friedhelm Krupp, Frankfurt, Senckenberg.



Yousef Ahmed from Jordan, and Professor Gero Hillmer (Hamburg) visiting the Bryozoology of the Senckenberg Research Institute in Frankfurt (August 7, 2008)

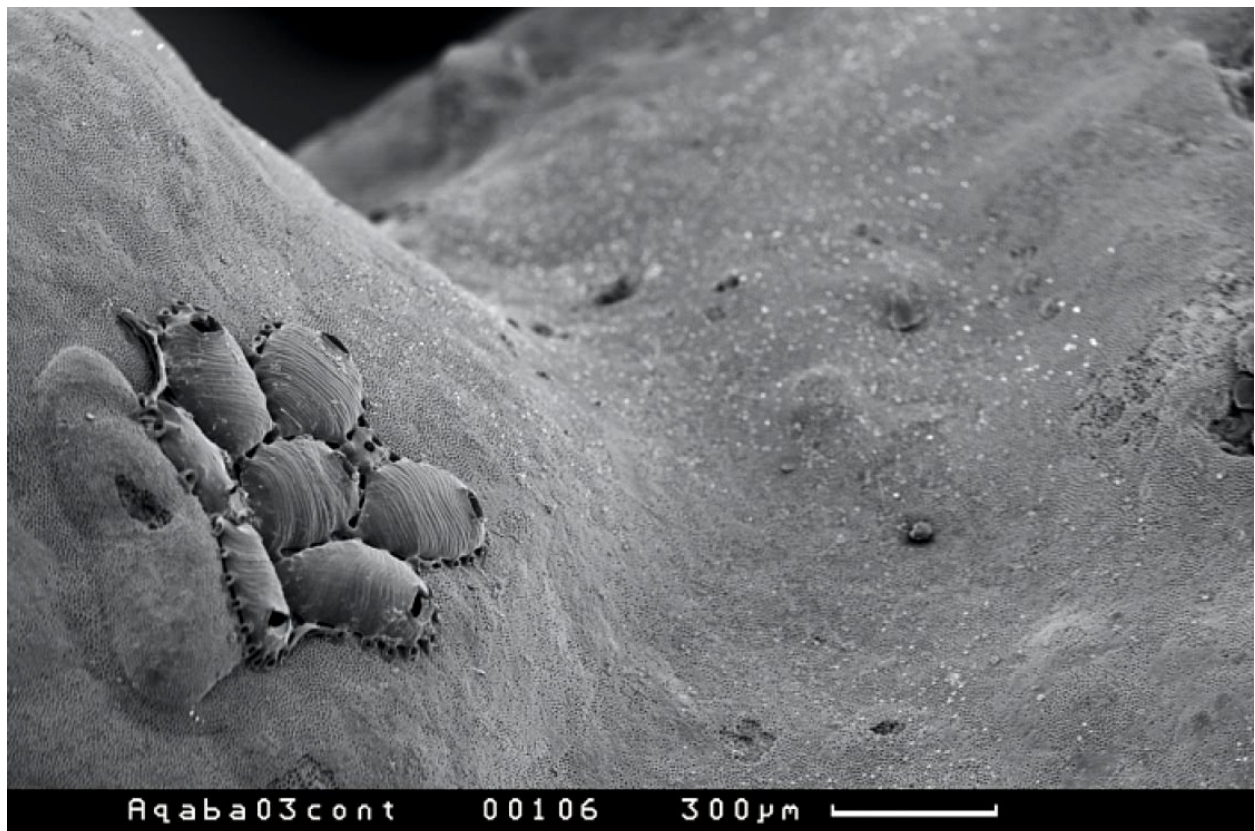
Bryozoology in Senckenberg is concentrating on a taxonomic survey of bryozoans in the Gulf of Aqaba in Jordan. In March 2007, Heike Link (Kiel)

and Joachim Scholz (Frankfurt) visited the Marine Science Station in Aqaba together with the Polychaete taxonomist Dr. Thomas Wehe from Heidelberg University (see IBA Bulletin 3/1, from March 2007). From July 15, 2007, to August 14, 2007, we welcomed as our guest Mr. Yousef Ahmed from Jordan.

Yousef had already started to document bryozoans in the Aqaba region prior to our visit in March, and together with him and Gero Hillmer we started with our taxonomical survey on the bryozoans, and to discuss further activities on the use of bryozoans as indicator for environmental stress, settling in the reef habitat and on artificial substrata. We will also build up a joint collection of bryozoans from Jordan to be shared between the partners in Aqaba, and Frankfurt.

Although in historical times the bryozoans of the Red Sea are associated with famous names such as Ehrenberg, Audouin and Savigny (the Audouin illustrations have recently been beautifully re-published by Jean-Loup d'Hondt, 2006) there has been until now no taxonomic guide-book for bryozoans of the Northern Red Sea, and the Aqaba Station in particular. We are currently preparing together with Yousef Ahmed an SEM catalogue as a training guide for students from Jordan and elsewhere, and we have documented up to now some 30 species under the SEM (with the true diversity probably four to five times of that, to be expected settling on about 30 kilogramme of substrata just having arrived from Aqaba). Although the reef off the Aqaba Station is not in excellent condition any more, the bryozoan diversity and abundance is surprisingly high, including species that are probably new.

We look forward to the exchange of ideas and data with all IBA members who have interest in bryozoan research in this part of the world.



“Where no man has gone before...”: One of the Audouin 1826 bryozoans (*Chorizopora brongniartii*) on a voyage towards unexplored space & species off the Aqaba Marine Research Station in Jordan.

Joachim Scholz

“Bryozoan” and “Bryozoans”

We're all familiar with poor and often downright inaccurate definitions of bryozoans in encyclopaedias of biology and geology. Vivek Sharma's *Encyclopaedia of Paleontology* (2006. Anmol Publications Pvt. Ltd. New Delhi, 247 pp.) is not the worst culprit but breaks new ground in giving separate entries for 'Bryozoan' and 'Bryozoans' one after the other on page 32:

Bryozoan A tiny marine invertebrate that forms a crust-like colony; colonies of bryozoans may look like scaly sheets on seaweed.

Bryozoans Aquatic, colonial animals with branching, mossy or fan-like growths. They resemble corals but have more complex nervous, muscular and digestive systems.

According to these definitions, freshwater members of the phylum would be bryozoans but not bryozoan. My guess is that Sharma copied entries for bryozoan and bryozoans verbatim from separate sources without making the connection between the two terms. Luckily, ectoprocts and polyzoans escaped his attention, otherwise we might have had six different definitions for the same animals, and perhaps a seventh if he had stumbled across the formal taxonomic name Bryozoa.

- Paul Taylor

Poetry Corner

In amongst some Ascidiacea papers handed out by visiting ascidian expert Patricia Kott a couple of years ago was a poem that is a living tribute to John Ryland. I'm sure the IBA members would enjoy it. (Dennis Gordon).

JOHN RYLAND'S MISSION

When Noah allotted the tickets for "Ark"
(And collected appropriate fares)
He applied a monogamist's principle that
All species should enter in pairs.

For God had forbidden colonial forms.
His explicit instructions to Noah
Were: that he exclude all non-tetrapod groups
Including those strange Bryozoa.

Now, some aeons on, a new prophet emerged
From those who would study the sea
A budding zoology student who said
"These are mine", and he chuckled with glee!

This champion, John Ryland, eventually proved
Though they emulate plants in their habit

And really are challenged because they can't move
They increase their kind like a rabbit.

While tetrapod animals needed the Ark
There, fixed to its bottom unseen
Bryozoans, zoanthids, ascidians too
Were waiting for John and Christine!

From Fiji to Townsville and in the Atlantic
From Rottneest and Port Phillip Bay
In surf zones and rockpools, on sea floors and bridge piles
He found them and now he can say:

"I know all about them, colonial species
And many and varied they be.
They know what they want, and how they can get it.
In fact, they are very like me!"

Pat Kott wrote: "This verse is for the peripatetic John Ryland who, though the organisms on which he works with such distinction are sessile and fixed to the substrate, has (often with his wife Christine) chased them around the world -- sharing his excitement in biology, challenging and stimulating always, and a wonderful colleague and friend. In composing the verse I had the assistance of that celebrated versifier and promoter of Australian tetrapods, Ronald Strahan. He is responsible for the first two verses. He admits to some ignorance about Bryozoa, but was impressed that the word rhymed with Noah!"

Recent Publications

The following list includes works either published since the previous issue of the *IBA Bulletin* or else missed by previous issues. As always, members are encouraged to support future compilations by continuing to send complete citations to the IBA secretary at any time. Reprints will be gratefully received by the IBA archivist, Mary Spencer Jones.

- Barnes, D. K. A., K. E. Webb and K. Linse (2007). Growth rate and its variability in erect Antarctic bryozoans. *Polar Biology* 30(8): 1069-1081.
- Berning, B. (2007). The Mediterranean bryozoan *Myriapora truncata* (Pallas, 1766): a potential indicator of (palaeo-) environmental conditions. *Lethaia* 40: 221-232.
- Bjerager, M. and F. Surlyk (2007). Benthic palaeoecology of Danian deep-shelf bryozoan mounds in the Danish Basin. *Palaeogeography, Palaeoclimatology, Palaeoecology* 250(1-4): 184-215.
- Canning, E. U., A. Curry, S. L. L. Hill and B. Okamura (2007). Ultrastructure of *Buddenbrockia allmani* n sp (Myxozoa, Malacosporea), a parasite of *Lophopus crystallinus* (Bryozoa, Phylactolaemata). *Journal of Eukaryotic Microbiology* 54(3): 247-262.
- Dahms, H.-U., Q.-F. Gao and J.-S. Hwang (2007). Optimized maintenance and larval production of the bryozoan *Bugula neritina* (Bugulidae : Gymnolaemata) in the laboratory. *Aquaculture* 265(1-4): 169-175.
- Ernst, A. (2007). A cystoporate bryozoan species from the Zechstein. *Paläontologische Zeitschrift* 81(2): 113-117.
- Gilmour, E. H. (2007). New Carboniferous Bryozoa of the Bird Spring Formation, southern Nevada. *Journal of Paleontology* 81(3): 581-587.
- Gomez, A., R. N. Hughes, P. J. Wright, G. R. Carvalho and D. H. Lunt (2007). Mitochondrial DNA phylogeography and mating compatibility reveal marked genetic structuring and speciation in the NE Atlantic bryozoan *Celleporella hyalina*. *Molecular Ecology* 16(10): 2173-2188.
- Gorjunova, R. V. and V. D. Lavrentjeva (2007). New Bryozoans from the Devonian-Carboniferous boundary beds of Transcaucasia. *Paleontological Journal* 41(2): 146-155.
- Guha, A. K. and K. Gopikrishna (2007). New calloporid (Bryozoa, Cheilostomata) species from Tertiary sequences of Western Kachchh, Gujarat. *Journal of the Geological Society of India* 70: 121-130.
- Hara, U. (2006). Middle and Upper Jurassic bryozoan biota of the southern Poland - their diversity, palaeoecology, evolution pattern and biogeography. *Volumina Jurassica*, Institute of Geology, Warsaw University 4: 234-235.
- Hara, U. (2006). Lower Sarmatian bryozoan biota of the Western Ukraine (Medobory Ridge): potential for palaeoenvironmental implications. *Przebieg i zmiennosc sedymentacji w basenach przedgórskich. II Polska Konferencja Sedymentologiczna POKOS2, Zwierzyniec.*
- Hara, U. (2007). Jurassic bryozoan assemblages of the southern Poland - ecological and biogeographical implications. *Przeglad Geologiczny* 55: 54-60 (in Polish).
- Harmelin, J.-G., G. Bitar and H. Zibrowius (2007). *Schizoretepora hassi* sp. nov. (Bryozoa: Phidoloporidae) from Lebanon (Eastern Mediterranean) and reappraisal of *Schizotheca serratimargo* (Hincks, 1886). *Cah. Biol. Mar.* 48: 179-186.

- Koromyslova, A. V. (2007). Morphogenesis, phylogenetic relationships, and distribution of the Bryozoans of the genus *Orbipora* Eichwald, 1856 (Order Trepostomida). *Paleontological Journal* 41(2): 132-145.
- Kuklinski, P. and B. Bader (2007). Comparison of bryozoan assemblages from two contrasting Arctic shelf regions. *Estuarine Coastal and Shelf Science* 73(3-4): 835-843.
- Kuklinski, P. and B. Bader (2007). Diversity, structure and interactions of encrusting lithophyllic macrofaunal assemblages from Belgica Bank, East Greenland. *Polar Biology* 30(6): 709-717.
- Lopez Gappa, J. and M. Cruz Sueiro (2007). The subtidal macrobenthic assemblages of Bahia San Sebastian (Tierra del Fuego, Argentina). *Polar Biology* 30(6): 679-687.
- Massard, J. A. and G. Geimer (2007). First record of *Fredericella sultana* (Blumenbach, 1779) (Bryozoa, Phylactolaemata) in Crete (Greece). *Bulletin de la Société des Naturalistes luxembourgeois* 108: 45-46.
- McCann, L. D., N. G. Hitchcock, J. E. Winston and G. M. Ruiz (2007). Non-native bryozoans in coastal embayments of the Southern United States: New records for the western Atlantic. *Bulletin of Marine Science* 80(2): 319-342.
- Nakashima, K. and H. Sano (2007). Palaeoenvironmental implication of reseeded limestones shed from Mississippian-Permian mid-oceanic atoll-type buildup into slope-to-basin facies, Akiyoshi, Japan. *Palaeogeography Palaeoclimatology Palaeoecology* 247(3-4): 329-356.
- O'Dea, A., F. Rodriguez and T. Romero (2007). Response of zooid size in *Cupuladria exfragminis* (Bryozoa) to simulated upwelling temperatures. *Marine Ecology* 28(2): 315-323.
- Powers, C. M. and D. J. Boyyjer Bryozoan paleoecology indicates mid-Phanerozoic extinctions were the product of long-term environmental stress. *Geology* (in press).
- Powers, C. M. and J. F. Pachut Diversity and distribution of Triassic bryozoans in the aftermath of the end-Permian mass extinction. *Journal of Paleontology* (in press).
- Sharp, J. H., M. K. Winson and J. S. Porter (2007). Bryozoan metabolites: an ecological perspective. *Natural Product Reports* 24: 659-673.
- Wyse Jackson, P. N. and M. M. Key, Jr. (2007). Borings in trepostome bryozoans from the Ordovician of Estonia: two ichnogenera produced by a single maker, a case of host morphology control. *Lethaia* 10.1111/j.1502-3931.2007.00021.x.

Upcoming Meetings and Conferences

Editor's Note: This page might become a permanent feature of the Bulletin. Does it duplicate other easily available information? Is it worth keeping? What other organizations might be included? Your suggestions are welcome.

Bryozoa

Larwood Meeting

23-24 May 2008 (tentative), Vienna, Austria

Contact Andrei Ostrovsky, oan_univer@yahoo.com

AustraLarwood Meeting

January 2008, Wellington, New Zealand

Contact Dennis Gordon, d.gordon@niwa.co.nz

International Bryozoology Association

25-30 July 2010, Kiel, Germany

Contact Priska Schäfer, ps@gpi.uni-kiel.de

Paleontology

The Paleontological Association.

Annual Meeting Dec 16-19, 2007 in Uppsala (Sweden)

Online registration now open https://www.palass.org/modules.php?name=form_ameeting

The Paleontological Society

Annual Meeting October 28-31, 2007 with GSA in Denver, Colorado (USA)

http://www.paleosoc.org/2007_Denver_GSA.html

North American Paleontological Convention

21-27 June, 2009 in Cincinnati, Ohio (USA)

<http://www.paleosoc.org/NACConv2005-2009.html>

Biology

Ecological Society of America

3-8 August 2008 in Milwaukee, Wisconsin(USA)

<http://www.esa.org/milwaukee/>

International Association for Ecology

16-21 August 2009, Brisbane (Australia)

http://www.intecol.net/info-esk/X-INTECOL/10th_INTECOL_Congress-3.htm

Ecological Society of Australia Annual Conference 26-30 Nov 2007. Perth, Australia .
<http://www.ecolsoc.org.au/ESA2007Conference.htm>

International Society of Limnology and Oceanography
Ocean Sciences Meeting, 2-7 March 2008, Orlando, Florida (USA)
<http://aslo.org/meetings/orlando2008/>